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PATENT APPLICATION
Docket No: 14321.67

IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In re application of)
Ken Tsuzuki et al.)
Serial No.: 10/523,665) Art Unit
Filed: February 4, 2005) 2817
Confirmation No.: 8452)
For: SEMICONDUCTOR OPTICAL CONVERTER)

CERTIFICATE OF DEPOSIT UNDER 37 C.F.R. § 1.8

I hereby certify that the following documents are being deposited with the United States Postal Service as First Class Mail, postage prepaid, in an envelope addressed to: Commissioner for Patents, PO Box 1450, Alexandria, Virginia 22313-1450, on the 15th day of May 2006.

- Transmittal for Information Disclosure Statement (3 pages)
- Information Disclosure Statement (2 pages)
- Form PTO-1449 listing 7 references (2 pages)
- A copy of 6 Non-US references listed on the Form PTO-1449
- Postcard

Respectfully submitted,

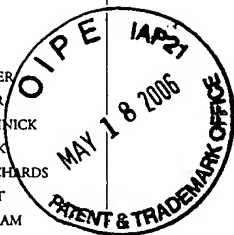
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TRANSMITTAL FOR INFORMATION DISCLOSURE STATEMENT

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

Sir:

Transmitted herewith for filing and pursuant to 37 C.F.R. § 1.97 is an Information Disclosure Statement, which includes the following statements, if any, required variously by 37 C.F.R. § 1.98:

- ☒ Statement of relevance of selected cited references not in the English language which are not translated.
- ☐ Statement that selected cited references are substantially cumulative of an enclosed or previously submitted reference.
- ☐ Statement that selected cited references were previously cited by or submitted to the United States Patent and Trademark Office in a prior application which is relied upon for an earlier filing date under 35 U.S.C. § 120.

A. Additional Materials Required Due to Content of Information Disclosure Statement

Transmitted are the following documents in addition to the Information Disclosure Statement as required variously under 37 C.F.R. § 1.98:

- ☒ Form PTO-1449 listing 7 references submitted for consideration.
- ☒ A copy of 6 Non-US references listed on the Form PTO-1449.
- ☐ English translations of ____ (____) of the references listed on the Form PTO-1449 which are not in the English language.
- ☐ Copies of the following documents from the prosecution of a previous, related application:
 - ☐ Form PTO-1449 AND INFORMATION DISCLOSURE STATEMENT; and
 - ☐ Form PTO-892

B. Additional Materials Required Due to Timing of Filing of Information Disclosure Statement

The transmitted Information Disclosure Statement is being filed within one (1) of the following four (4) time periods:

- I. ☒ Prior to the later of either three (3) months following the filing date or the mailing of a first Office Action. Accordingly, no materials other than those listed above are enclosed.
- II. ☐ Following the latter of either three (3) months following the filing date or the mailing of a first Office Action, but before the mailing of a final Office Action or a Notice of Allowance. Accordingly, to secure consideration thereof, one (1) of the following is also enclosed:
 - ☐ Promptness Certification; or
 - ☐ Check No. _____ in the amount of ____ constituting the submission fee set forth in 37 C.F.R. § 1.17(p).
- III. ☐ After the mailing of a Notice of Allowance, but before payment of the Issue Fee. Accordingly, in order to secure consideration thereof, each of the following are also enclosed:
 - ☐ Promptness Certificate;
 - ☐ Petition for Consideration; and

- Check No. in the amount of — constituting the petition fee set forth in 37 C.F.R. § 1.17(i)(1).
- IV. — After payment of the Issue Fee. Accordingly, in order to secure consideration thereof, each of the following are also enclosed:
- Petition to Withdraw from Issue; and
- Check No. — in the amount of — constituting the petition fee set forth in 37 C.F.R. § 1.17(i)(1).

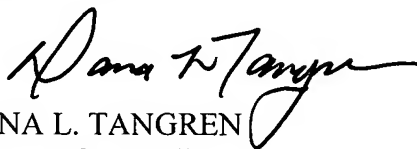
C. Fees

The Commissioner is hereby authorized to charge payment of or any deficiency in the following fees associated with this communication, or to credit any overpayment thereof, to Deposit Account No. 23-3178. A duplicate copy of this letter is enclosed.

- X Any fee required in relation to filing of this letter or any documents transmitted therewith.
- The submission fee set forth in 37 C.F.R. § 1.17(p) in the event that 37 C.F.R. § 1.97(c) applies and the Examiner is not satisfied that any Promptness Certificate submitted meets the requirements of 37 C.F.R. § 1.97(e).
- The submission fee set forth in 37 C.F.R. § 1.17(p).
- The petition fee set forth in 37 C.F.R. § 1.17(i)(1).

Dated this 15th day of May 2006.

Respectfully submitted,



DANA L. TANGREN
Attorney for Applicant
Registration No. 37,246
Customer No. 022913
Telephone No. 801.533.9800



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INFORMATION DISCLOSURE STATEMENT
UNDER 37 C.F.R. § 1.97

Commissioner for Patents
PO Box 1450
Alexandria, Virginia 22313-1450

Sir:

Please find, pursuant to 37 C.F.R. § 1.98(a)(1), the enclosed Form PTO-1449 which contains a list of all patents, publications, or other items that have come to the attention of one or more of the individuals designated in 37 C.F.R. § 1.56(c). While no representation is made that these references may be "prior art" within the meaning of that term under 35 U.S.C. §§ 102 or 103, the enclosed listed references are disclosed so as to fully comply with the duty of disclosure set forth in 37 C.F.R. § 1.56.

Moreover, while no representation is made that a specific search of office files or patent office records has been conducted or that no better art exists, the undersigned attorney of record believes that the enclosed art is the closest to the claimed invention (taken in its entirety) of which the undersigned is presently aware, and no art which is closer to the claimed invention (taken in its entirety) has been knowingly withheld.

In accordance with 37 C.F.R. §§ 1.97 and 1.98, a copy of each of the listed references or relevant portion thereof that is not a US patent document is also enclosed.

Statement of Relevance of References Listed
Unaccompanied by English Translation
Under 37 CFR § 1.98(a)(3)

In accordance with 37 CFR § 1.98(a)(3), the following concise explanation of the relevance of each listed reference that is not in the English language and unaccompanied by a translation into English is provided.

Japanese Publication No. 05/027279: PURPOSE: To provide the waveguide type optical modulator by a low operating voltage and voltage impression of a low device loss. CONSTITUTION: A 1st stripe structure consisting of a semi-insulating clad layer 4, a semi-insulating waveguide layer 5, a semi-insulating clad layer 7, and a semi-insulating clad layer 8 and a 2nd stripe structure consisting of the layers 4 to 7 are intersected and disposed. The formation of the conductive clad layer 7 as a thin layer is possible and, therefore, the low operating voltage is attained. In addition, the light absorption of the propagated light in the conductive clad layers 2 and 7 is decreased and the low loss is attained.

Japanese Publication No. 11/072759: PROBLEM TO BE SOLVED: To decrease the loss as a device by making a nondoped layer thin where only an optical functional part is present and forming a nondoped layer thick in a light-propagating part. SOLUTION: The thickness d of a i -InP clad layer 3 is made thick as 0.3 to 0.4 μm in a light-propagating part I, while in an optical functional part II, the layer is made thin same as a conventional device, for example, as 0.05 μm thick. A i -MQW core 4 is 0.4 μm thick. Therefore, the whole thickness D of the nondoped layer in the optical functional part II is made thin as 0.45 μm same as a conventional one so that ON/OFF switching of light can be performed with low halfwavelength voltage. On the other hand, in the light-propagating part I having the length several times as that of the optical functional part II, the thickness d of the i -InP clad layer 3 is made thick as 0.3 to 0.4 μm . Thereby, propagation loss due to influences of the p dopant can be decreased.

Dated this 15th day of May 2006.

Respectfully submitted,



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Registration No. 37,246
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Telephone No. 801.533.9800

Applicant: Ken Tsuzuki et al.

Confirmation No.: 8452

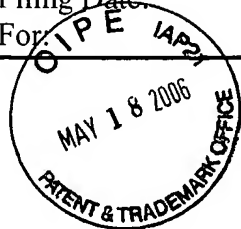
Serial No.: 10/523,665

Att'y Docket No.: 14321.64

Filing Date: February 4, 2005

Art Unit: 2817

For: SEMICONDUCTOR OPTICAL CONVERTER

INFORMATION DISCLOSURE CITATIONS MADE BY APPLICANTU.S. Patent Documents

<u>Examiner Initial*</u>	<u>Document Number</u>	<u>Issue Date</u>	<u>Name</u>
___ 1	5,647,029	07/08/1997	Mihailidi et al.

Foreign Patent Documents

<u>Examiner Initial*</u>	<u>Document Number</u>	<u>Publication Date</u>	<u>Country or Patent Office</u>	<u>Translation</u>
___ 2	05-027279	02/05/1993	Japan	No
___ 3	11-072759	03/16/1999	Japan	No

Other Documents

(including author, title, pertinent pages, etc.)

<u>Examiner Initial*</u>	
___ 4	T.Y. Chang et al., <i>Novel Modulator Structure Permitting Synchronous Band Filling of Multiple Quantum Wells and Extremely Large Phase Shifts</i> , Electron Device Meeting 1989, Technical Digest, International, December 3-6, 1989, pp. 737-740.
___ 5	C. Rolland et al., <i>10 Gbit/s, 1.56 μm Multiquantum Well InP/InGaAsP Mach-Zehnder Optical Modulator</i> , Electronics Letters, March 4, 1993, Vol. 29, No. 5, pp. 471-472.
___ 6	R. Spickermann et al., <i>GaAs/AlGaAs Electro-Optic Modulator with Bandwidth > 40 GHz</i> , Electronics Letters, May 25, 1995, Vol. 31, No. 11, pp. 915-916.
___ 7	Jin-Wei Shi et al., <i>Design and Analysis of Long Absorption-Length Traveling-Wave Photodetectors</i> , Journal of Lightwave Technology, December 2000, Vol. 18, 12 th issue, pp. 2176-2187.

Examiner:

Date Considered:

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.

Form PTO-1449

Sheet 2 of 2

Applicant: Ken Tsuzuki et al.

Confirmation No.: 8452

Serial No.: 10/523,665

Att'y Docket No.: 14321.64

Filing Date: February 4, 2005

Art Unit: 2817

For: SEMICONDUCTOR OPTICAL CONVERTER

References Cited by Applicants

While the filing of Information Disclosure Statements is voluntary, the procedure is governed by the guidelines of Section 609 of the Manual of Patent Examining Procedure and 37 C.F.R. §§ 1.97 and 1.98. To be considered a proper Information Disclosure Statement, Form PTO-1449 shall be accompanied by a copy of each listed patent or publication or other item of information and a translation of the pertinent portions of foreign documents (if an existing translation is readily available to the applicant), an explanation of relevance of each reference not in the English language, and should be submitted in a timely manner as set out in MPEP Sec. 609.

Examiners will consider all citations submitted in conformance with 37 C.F.R. § 1.98 and MPEP Sec. 609 and place their initials adjacent the citations in the spaces provided on this form. Examiners will also initial citations not in conformance with the guidelines which may have been considered. A reference may be considered by the Examiner for any reason whether or not the citation is in full conformance with the guidelines. A line will be drawn through a citation if it is not in conformance with the guidelines AND has not been considered. A copy of the submitted form, as reviewed by the Examiner, will be returned to the applicant with the next communication. The original of the form will be entered into the application file.

Each citation initialed by the Examiner will be printed on the issued patent in the same manner as references cited by the Examiner on Form PTO-892.

The reference designations "A1," "A2," etc. (referring to Applicant's reference 1, Applicant's reference 2, etc.) will be used by the Examiner in the same manner as Examiner's reference designations "A," "B," "C," etc. on Office Action Form PTO-1142.

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Examiner:

Date Considered:

*EXAMINER: Initial if reference considered, whether or not citation is in conformance with MPEP 609, draw line through citation if not in conformance and not considered. Include copy of this form with next communication to applicant.
